8-Port AcerHub

Dual-Speed Ethernet Hub

ALH-608ds

User's Manual

Acer

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IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions carefully. Save these instructions for future reference.
2. Follow all warnings and instructions marked on the product.
3. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
4. Do not use this product near water.
5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
6. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.
7. This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
8. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
9. If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed 15 amperes.
10. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.

About this Manual

Purpose

This user manual gives you all the information you need to operate the AcerHub ALH-608ds dual-speed Ethernet hubs properly.

Note: ALH-608ds is the model number of AcerHub 608ds.This model number "ALH-608ds" will be used through this manual.

Manual Structure

This user manual consists of Quick Installation Guide, four chapters and one appendix as follows:

Quick Installation Guide

Chapter 1 Overview

This chapter describes the features and functions of the AcerHub ALH-608ds hub, and the items in the package.

Chapter 2 Make Your Hub Ready

This chapter describes the installation procedures to quickly make your hub ready for networking and the easiest way to find out if the hub is working well.

Chapter 3 Building Feasible Networks

This chapter describes the network topology for hybrid 10Mbps and 100Mbps networks, cabling requirements for connections, and the interoperability between other hubs and switches. A detailed introduction of the bridged uplink port will also be given.

Chapter 4 Troubleshooting

This chapter provides a simple troubleshooting guideline that you can follow to eliminate errors for quick network recovery.

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Quick Installation Guide

1. Unpack the AcerHub ALH-608ds dual-speed Hub and it's accessories (refer section 1.3).
2. Connect the Hub to the external Power supply (refer to section 2.4.1)
3. Use the normal ports to connect to PCs and computers.
4. Use the uplink port to connect to another hub or LAN switch.

1. Overview

Congratulations on your purchase of the AcerHub 608ds. The AcerHub ALH-608ds is a 8-port dual-speed fast Ethernet repeater hub for connection with multiple PCs to a workgroup LAN (Local Area Network) environment to share network resources.

1.1 Product goal

AcerHub ALH-608ds provides high-speed and easy access to the LAN and Intranet both for SOHO (Small Office/ Home Office) and corporations. It allows data transmission at speeds of 10 Mbps or 100Mbps, depending if the connected device is running at 10Mbps or 100Mbps. Besides the high-speed data access, the AcerHub ALH-608ds also supports one uplink port for Class-II cascading connection between hub stacks. The uplink port will support the bridge function that permits a distance of 100 meters for data transmission in Class-II cascading and eliminates the repeater count limitation in IEEE 802.3u specifications. It will be easy to construct your own LAN with ALH-608ds by this explicit expanding capability of data transmitting distances and user accounts.

Installation of AcerHub ALH-608ds is relatively simple and all you have to do is plug the cables from the adapter cards to the ports, check the LEDs and you can start networking.

1.2 Product Features

AcerHub ALH-608ds provides the following features:

- 8-port dual-speed hub, each port is a 10/100 Mbps dual-speed connection with network speed auto-detection
- Fully complies with IEEE 802.3 and 802.3u specifications
- Built-in switching function to connect 10 and 100Mbps network domains
- Stackable function to provide maximum stacking of 5 sets as a single hub count by SCSI-II cables
- In slave hub mode, an uplink port with bridge function which provides scalable network expansion.(This function is very useful in constructing a

large network,refer section 3.1 for details.)

- Built-in switch auto-disable function to avoid data looping when stacking
- External switching power supply for lower power consumption and heat emission
- Compact design for SOHO desktop environment for easy networking

1.3 Product configuration

The product configuration inside the package is shown in the *figure 1-1.* Please check the contents of the package if there is any missing part before using the hub. The accessories of this product include:

ALH-608ds dual-speed hub	1 piece
External switching power adapter	1 piece
Power cord	1 piece
Stacking cable (SCSI-II)	1 piece
Stacking kit	1 pair
User's manual	1 piece

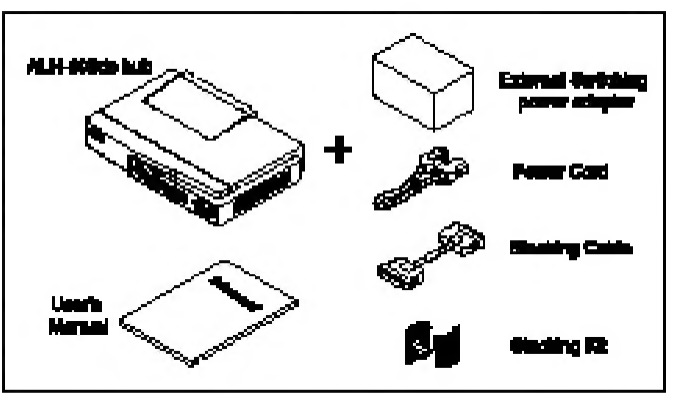


Figure 1-1 Product configuration of AcerHub ALH-608ds

2. Make Your Hub Ready

This chapter will guide you through how to install the AcerHub ALH-608ds. It includes procedures for connecting to the external power supply, installing the hub on your working surface, connecting the Hub to your computer, and guidelines to see if it works well. Before setting up your hub, please take note of the front and rear panel of this hub, as shown in *Figure 2-A* and *2-B*.

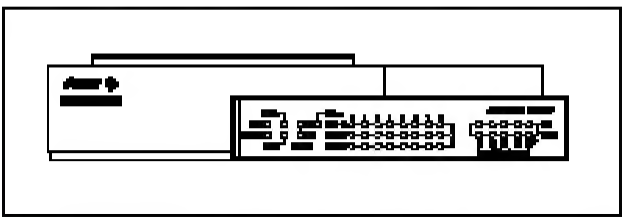
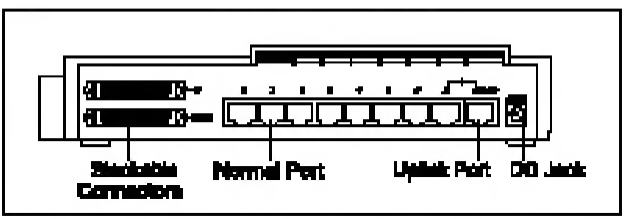


Figure 2-A Front Panel



Note: The ports marked "*II*"", "2", "3", "4", "5", "6", "7","8" are normal ports.

Figure 2-B Rear Panel

Please follow the installing procedures to make your network ready:

2.1 Connecting to the external power supply

Carefully unpack the AcerHub ALH-608ds and it's accessories. For the first time that you use this hub, please make sure there is nothing missing in the package. The procedures for connecting to the power outlet are:

2.1.1 Take out the hub and the power adapter from the packing box, as shown in *Figure 2-1*.

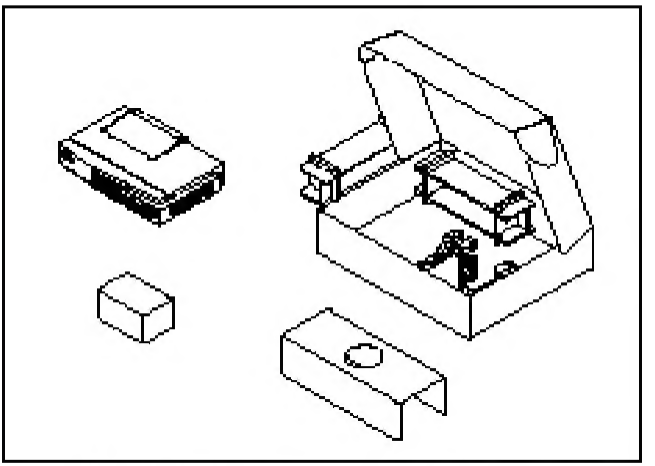


Figure 2-1 Get the hub and power adapter

2.1.2 Place the hub on the desktop and remove the packing box of the power adapter, as shown in *Figure 2-2*.

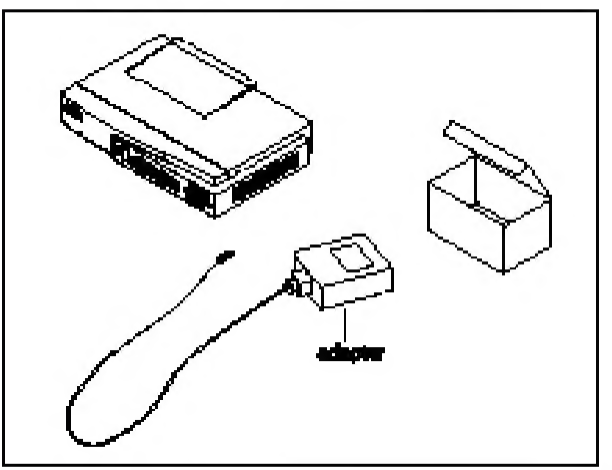


Figure 2-2 Put the hub on desktop and find the proper power adapter

2.1.3 Verify it's a 5V,3A power adapter by looking at the indicating label. If the adapter is correct, please stretch the cable and plug the cord into the power jack of the hub, as shown in *Figure 2-3.*

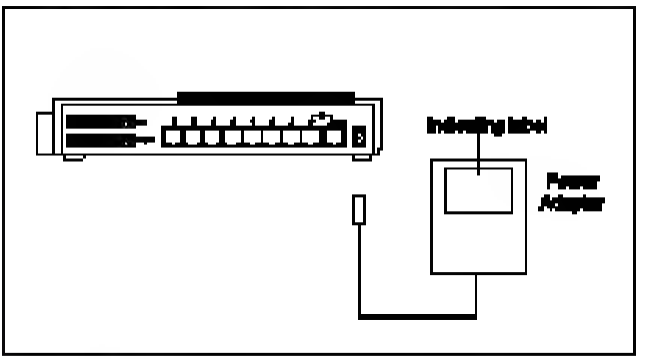


Figure 2-3 Connect to the power adapter

2.1.4 Once the hub is connected to the power adapter, please connect the power adapter to a power cord, as shown in *Figure 2-4.*

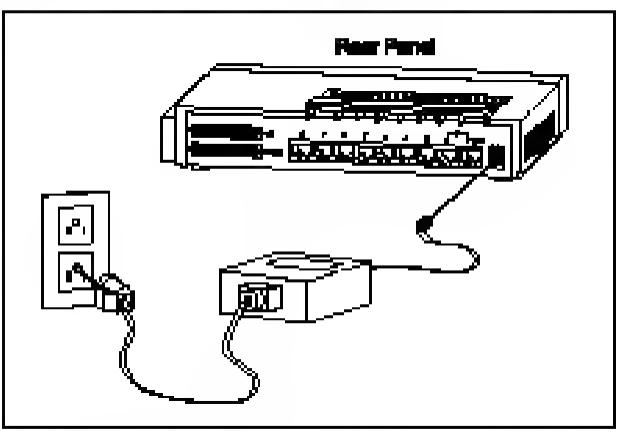


Figure 2-4 Connect to the power cord to wall outlet

2.1.5 Plug the power cord into the outlet on the wall and check if the power LED lights up. If it lights up, then the hub is ready to be connected to the network, as shown in *Figure 2-5*.

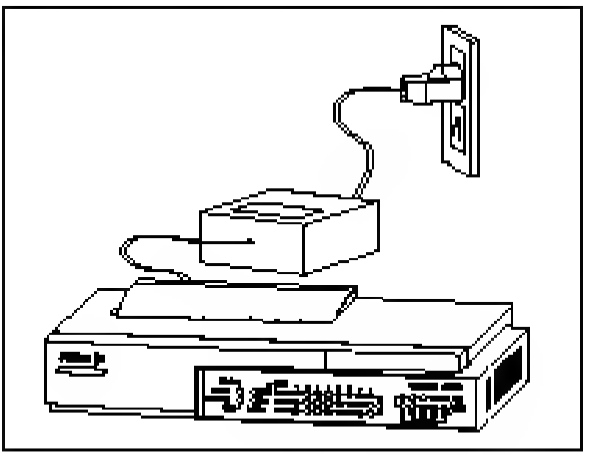


Figure 2-5 Power on the hub and make it ready

2.2 Installing the hub on your working surface

You have to find a solid working surface to place the hub and make sure the equipment is not close to any high voltage power source or over-heated sources. Also keep away from electronic equipment sensitive to electronic interference. The brief procedures of installing your hub should be:

2.2.1 Put the hub on a stable working surface, as shown in *Figure 2-6*.

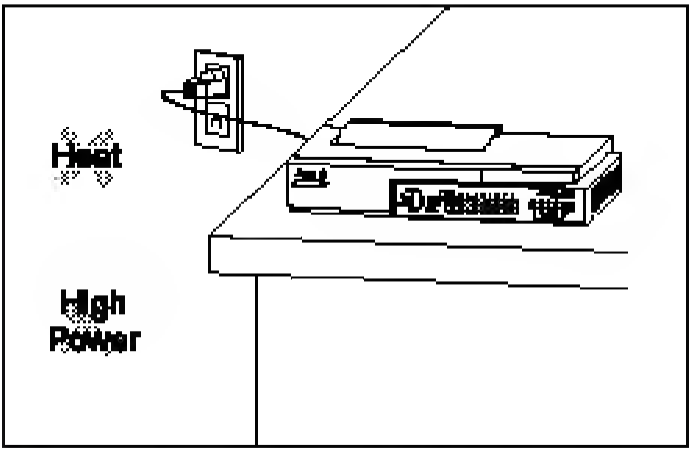


Figure 2-6 Lay hub on stable desktop

2.2.2 If you are installing more than one hub, please turn off the power of all hubs first. Then you can get another hub and place it above the previous one on the working surface, as shown in *Figure 2-7*. Finally, put the stacking kit in the middle of two sides and click into the stacking hole in the plastic housing. Check if all hubs are tightly fastened by the stacking kits and proceed to next step.

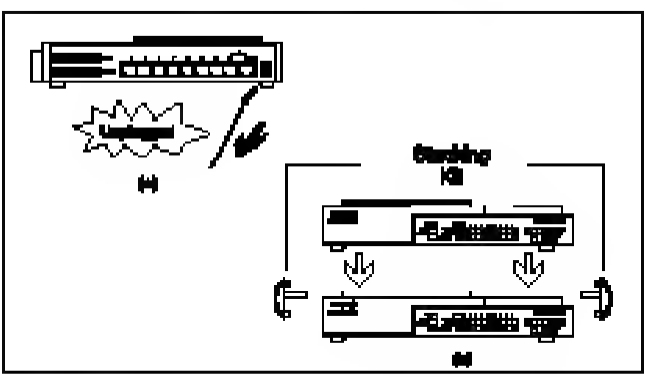


Figure 2-7 Unplug the power,and stack two hubs together

2.2.3 Get the stackable cable and connect the cable to the stacking connector on the hub, as shown in *Figure 2-8*. Connect "Down" SCSI port of the upper hub to "Up" SCSI port of the lower hub. Any loose connection of the stackable cable will cause problems with network performance and quality.

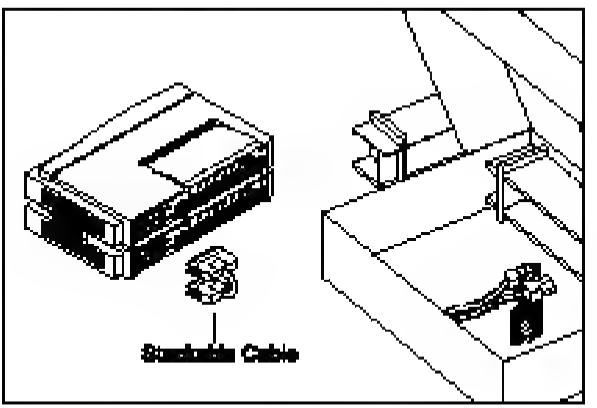


Figure 2-8 Connect hubs by stacking cable

2.2.4 If you are trying to add more hubs in your office, you can follow the procedures from 2.2.2 to 2.2.3 repeatedly. Be sure not to stack hubs more than 5 (include 5) sets in one stack.

2.2.5 Plug the power cord into the outlet on wall and check if the power LED lights up. The hub is ready for network connection if the power LED lights up, as shown in *Figure 2-9*.

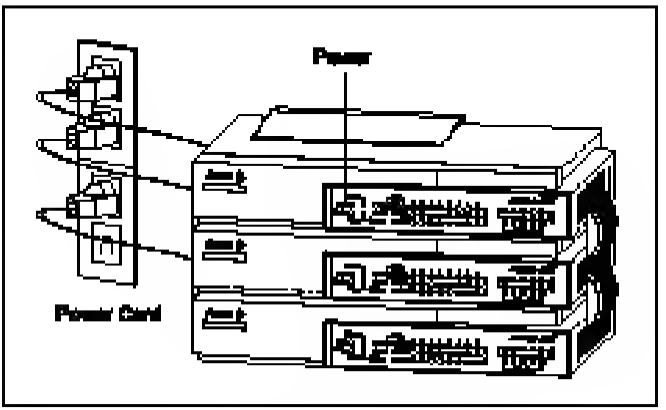


Figure 2-9 Stack multiple hubs together

2.3 Connecting to computers

2.3.1 Make sure the hub is ready for networking by checking if the PWR indicator displays.

2.3.2 See if the computer is working and find the RJ-45 connector of the adapter card in computers. You can connect UTP (Unshielded Twistered Pair) cables from normal ports of the hub to computers directly, as shown in *Figure 2-10*.

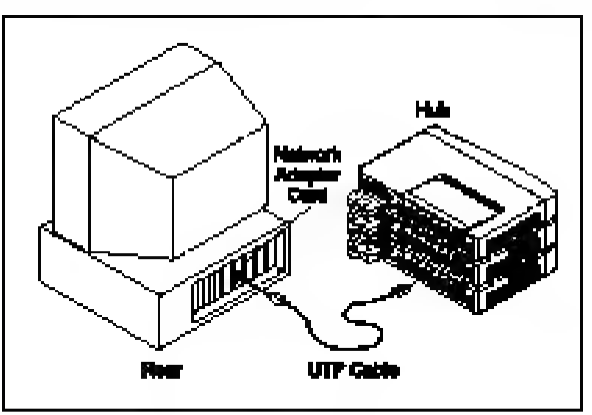


Figure 2-10 Connect to computers

2.3.3 Arrange the route for cabling if no fixed cabling box is provided. Otherwise, It's right way to connect from your computer to the fixed cabling box on your working surface and plug the other end of the cable to the RJ-45 connector on the hub, as shown in *Figure 2-11.*

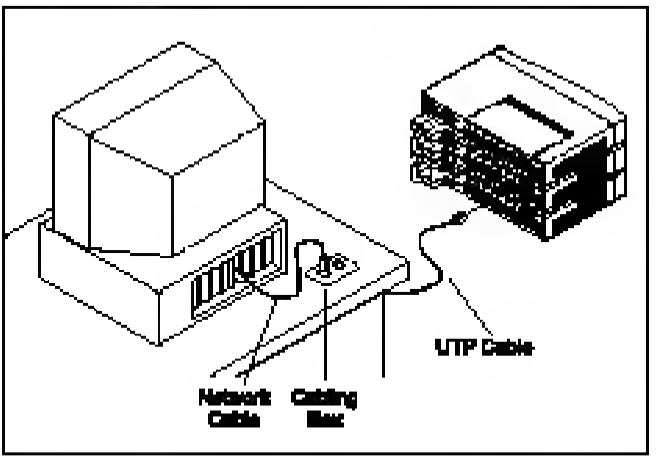


Figure 2-11 Connect UTP cable from hub to computers

2.3.4 After connecting to the hub, please check if the Link LEDs on the adapter card and the hub(named as LNK/Rx) are lit up, as shown in *Figure 2-12.* If the LED is not lit up, there must be something wrong and please reference to chapter 4 for quick trouble shooting.

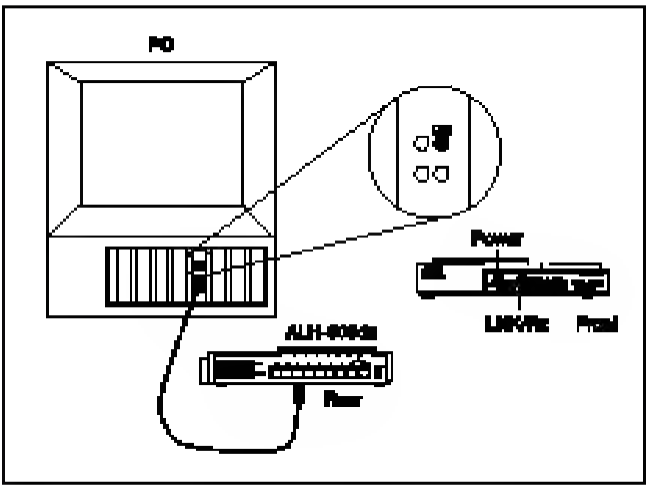


Figure 2-12 Check the Link LEDs both on hub and adapter card

2.3.5 If you are trying to connect more cables to the hub, please follow procedures from section 2.3.2 to 2.3.4.

2.4 Does the hub work well?

You can observe the LED status to see if the hub works fine. The meanings of LEDs are defined in section 2.4.1.

2.4.1 LED overview

The locations of LED indicators are shown in *Figure 2-13.*

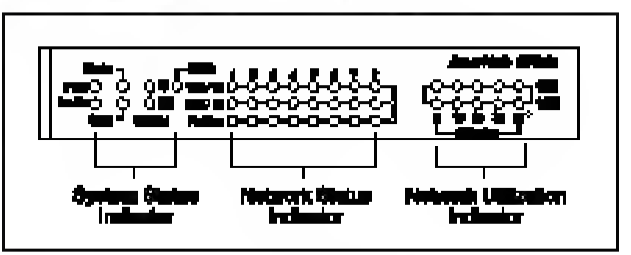


Figure 2-13 LED overview

There are three groups of LED indicators in the front panel:

- System status indicators: Indicate the overall system status of the hub. It includes system PWR, Fan Err., Master, Slave indicators, Collision of 10 and 100M, and Bridge function
- Network status indicators: Indicate working status of each connection port, It includes port 100/10M, LNK/Rx and Partition
- Network utilization indicators: Indicate the bandwidth utilization of 10 and 100Mbps. It includes 5, 15, 25, 35, 55+ scales indicators

2.4.2 System status indicators

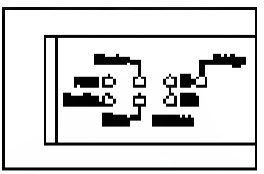


Figure 2-14 System Status Indicators

PWR: Indicates if the system is provided with power.

Color	On/Off	Indication
Green	On	System Powered
	Off	No Power

FAN Err.: Indicates if the cooling FAN is dead.

Color	On/Off	Indication
Orange	On	FAN is dead
	Off	Normal

Master/Slave: Indicates if the system is stacked to be the Master or Slave hub.

Note: It's normal either Master or Slave LED will display when hubs are stacking.

	Color	On/Off	Indication
Master	Green	On	Master
		Off	Malfunction
Slave	Green	On	Disable
		Off	Malfunction

Note:The difference between Master hub and Slave hub will be explained in chapter 3.

Collision: Indicate if a collision occurs in 10Mbps or 100Mbps domain.

	Color	On/Off	Indication
10 Collision	Orange	Blink	Collision in 10Mbps domain
		Off	Normal
100 Collision	Orange	Blink	Collision in 100Mbps domain
		Off	Normal

Bridge: Indicates if the bridging function is enabled.

Color	On/Off	Indication
Green	On	Bridge function enabled
	Off	Bridge function disabled

Note: The slave hub will provide a Bridge Uplink Port, see chapter 3 for details.

2.4.3 Network Status Indicators

There are 3 LED indicators to indicate the network status of each connection port.

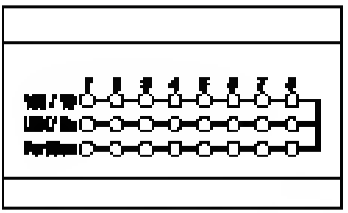


Figure 2-15 Network Status Indicators

100/10: Indicates if the port is working at 100Mbps or 10Mbps.

Color	On/Off	Indication
Green	On	100Mbps
	Off	10Mbps

LNK/Rx: Indicates if the port is linked to another port or receiving data.

Color	On/Off	Indication
Green	On	Link succeeds
	Blink	Receiving Data
	Off	Link fails

Partition: Indicates if the port is partitioned or not. A port is partitioned if it experiences consecutive collisions.

Color	On/Off	Indication
Orange	On	Partitioned
	Off	Normal

2.4.4 Network utilization indicators

There are 2 sets of LED indicators to indicate the real-time network utilization of 10Mbps and 100Mbps domain.

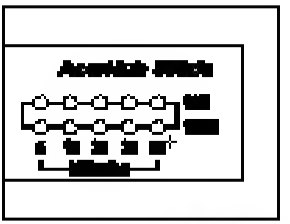


Figure 2-16 Network utilization indicators

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]

The number of utilization is in percentage. For example, "15" of "100M" means 15% of 100Mbps, "55+" of "10M" means the utilization is more than 55% of 10Mbps.

3. Building Feasible Networks

This chapter describes the network topology for hybrid 10Mbps and 100Mbps networks, cabling requirement for connections, the interoperability between hubs and switches and the function of bridge Up-Link port. Please turn over the page to see the different Topologies.

3.1 Network topology for AcerHub ALH-608ds : The factors for ALH-608ds dual-speed network implementation are:

- For stand-alone one, the ALH-608ds consists of separate 10Mbps and 100Mbps network domains with one built-in switch to inter-connect the data in domains, as shown in *Figure 3-1.*

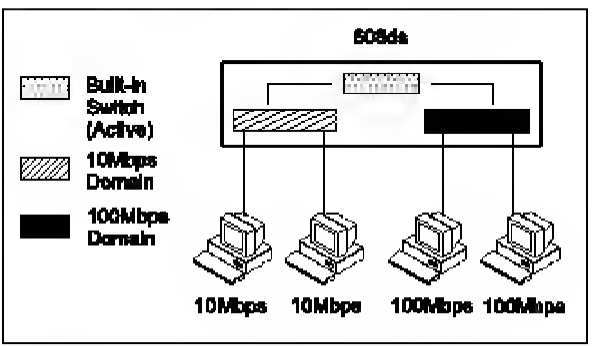


Figure 3-1 Separate domains in ALH-608ds.

- The hub will be divided into Master and Slave hubs when they are stacked together. The upper most hub is the Master hub, and other hubs are Slave hubs. The Master hub continues to use the built-in switch but the switch in the Slave hubs will be disabled. The Slave hubs will provide a uplink port with bridge functional(so called Bridge Uplink Port) that utilizes the first connection port as well, as in *Figure 3-2.*

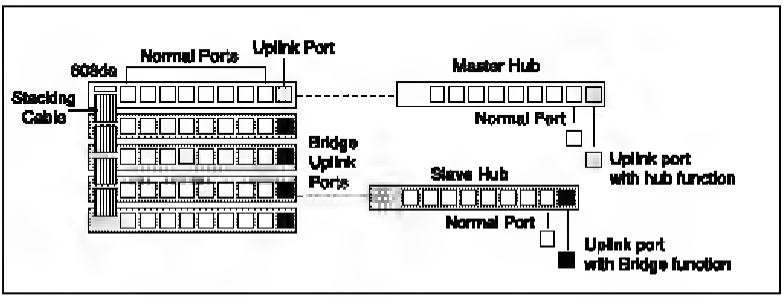


Figure 3-2 Master and Slave hubs in stacking ALH-608ds.

Note: 1. To concern the convenience of the cross-wiring connection between hubs, ALH-608ds provide 1 normal port (marked as "II) and 1 cross-over port (marked as "X"). These 2 ports are wired to each other by different wiring assignments.

2. The up-link port utilizes the first connection port with "X" sign.When you connect to another hub by this uplink port, you cannot simultaneously connect a PC to this port in which "II" sign is marked . The reason being that if a PC is connected to it, the physical signal in the cable will be corrupted.

- The built-in switches in slave hubs will be disabled automatically to avoid data looping from multiple inter-connections of hubs, as shown in *Figure 3-3*.

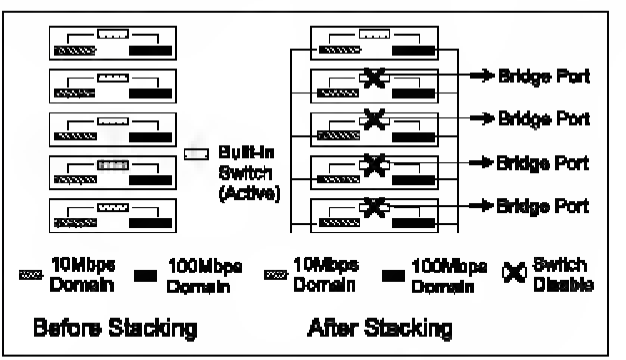


Figure 3-3 Auto Data looping prevention in ALH-608ds.

- By way of an uplink port with a Bridge function, the limitations on 100Mbps hub count(maximum 2) can be eliminated. The hub count is unlimited and cable length between hubs can reach 100meters, as shown in *Figure 3-4*.

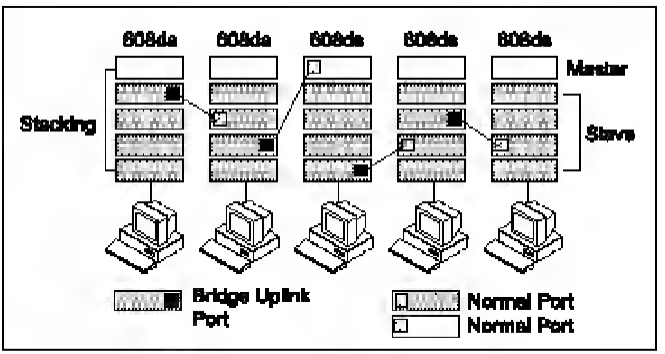


Figure 3-4 Unlimited cascading of ALH-608ds.

- All PCs with 10Mbps network adapter cards transmit data at 10Mbps and form the 10Mbps network domain, as shown in *Figure 3-5*.
- PCs with 10/100Mbps network adapter cards will auto-negotiate and switch the network speed to 100Mbps. They transmit data at 100Mbps and form the 100Mbps network domain, as shown in *Figure 3-5*.

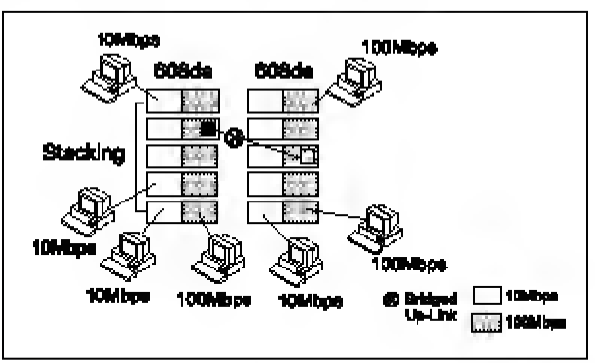


Figure 3-5 Network domains and bridged uplink.

- The data in 10Mbps or 100Mbps domain will be inter-connected by internal built-in switch in the Master hub consequently.
- All hubs delivering data by the shared-bus always work on half-duplex mode; that is, data can be sent or received at one time in one direction.

3.2 Interconnection to Hubs and Switches

3.2.1 Connecting to Ethernet Hubs : The factors governing hub interconnection are:

- The hubs are only connected by uplink port. ALH-608ds will automatically transmit at 10Mbps network speed when connecting to 10Mbps Ethernet hubs and 100Mbps network speed if connected to 100Mbps hubs.
- If multiple ALH-608ds are stacked together, users can connect to hubs by the uplink port in slave hubs. Therefore other hubs can perform another class-II cascading, as shown in *Figure 3-6.*

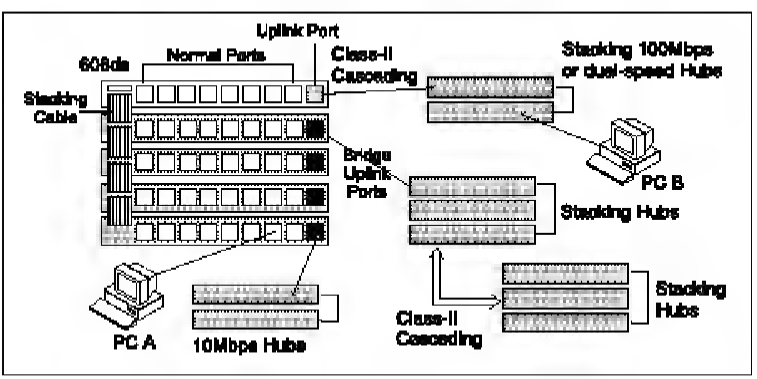


Figure 3-6 Connect to Ethernet Hubs.

3.2.2 Connecting to Ethernet Switches : The factors governing hub and switch interconnection are:

- The hubs are only connected to Ethernet switches by an uplink port. ALH-608ds will automatically work at 100Mbps network speed when connected to 10/100Mbps Ethernet switching ports and it will work at 10Mbps network speed if connected to 10Mbps switching ports.

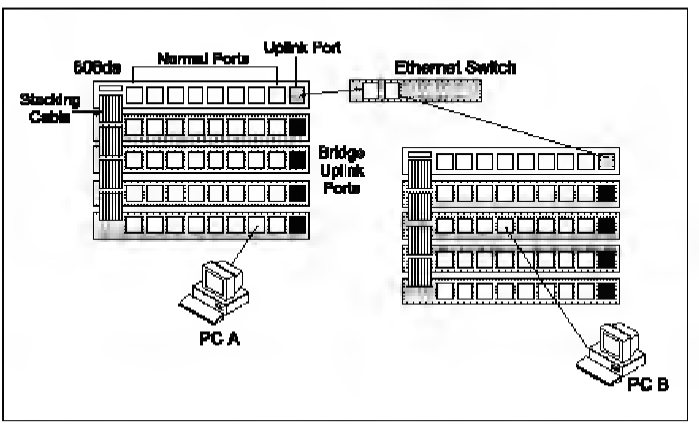


Figure 3-7 Connect to Ethernet Switches.

No matter if the ALH-608ds hubs are stacked together or not, the user always can connect to Ethernet switches by the uplink port.

4. Troubleshooting

4.1 Symptoms and Suggestions

Symptoms	Possible Reason	Suggestions
All LEDs are off	The hub is not receiving DC power	1. Check if the AC power cord is securely fastened at both ends ands that power is available at the AC outlet. 2. Check if the power adapter DC 5V cord is connected to Hub's DC jack
Link LED of a connected port is off	1.The UTP cable is not securely connected	1. Check the cable connection
	2.The port is bad	2.Try to connect another port
	3. If the other party is a PC, the Network Interface card(NIC) could be not working	3. Check if the network interface card(NIC)is installed properly
	4. If the other party is a hub or LAN switch, the connected ports signal could be cross-over	4. Make sure ALH-608ds normal port is connected to the other hub's(or switch's)uplink port(or called cross-over port), and ALH-608ds uplink port is connected the other's normal port
	5. The UTP cable is broken, or it is a cross-over cable	5. Try another normal cable
100 LED is not lit when connected to a 100 NIC or 100 Hub(but Link LED is lit.)	The auto-negotiation function is failed between ALH-608ds and the other party	1. Un-plug the UTP cable from ALH-608ds, and plug-in again 2. Check if the NIC is set to anto-negotiation mode 3. Check if the other hub is set to auto-negotiation mode 4. If the above steps does not work, it is an Inter-operability problem, contact your vendor

4.2 Master and Slave LEDs State and Result/Action

LED state	Stacking condition	Result & action
Both Master and Slave LEDs ill on	For all ALH-608ds, both standalone and stacking condition	Malfunction, Contact your vendor
None of Master and Slave LED lit on	For all ALH-608ds, both standalone and stacking condition	Malfunction, Contact your vendor
only Master LED lit on	ALH-608ds is standalone	It is ok
	the uppermost hub in the ALH-608ds stack	It is ok
	the lower hubs in the ALH-608ds stack	Error, Please check if the stacking cable is properly connected
only Slave LED lit on	ALH-608ds is standalone	Malfunction, Contact your vendor
	the uppermost hub in the ALH-608ds stack	Malfunction, Contact your vendor
	the lower hubs in the ALH-608ds stack	It is ok

If you have any problem in building your network with AcerHub ALH-608ds, please contact your Vendor or visit our website:

Http:// www.acernetxus.com.tw

Appendix A.Specifications

Network Interface

8-port 10/100 dual-speed auto-detection function

- 10Mbps Ethernet IEEE 802.3 10Base-T
- 100Mbps Ethernet IEEE 802.3u 100Base-TX

One of the ports(Port NO.1)has two RJ-45 connector to provide either normal or uplink connection.

Physical Dimension (From front View)

Width	230 mm
Depth	170 mm
Height	45 mm
Weight	1.5 Kg

Environmental Operating Range

Operating Environment	0° to 55° C (32° to 131° F)
Operating Humidity	20% to 80% non-condensing

Network Cable Specification

UTP Category 5 LAN cable of EIA/TIA-568 and EIA/TIA TSB-36 specifications for 100Mbps

Stacking Specification

Maximum stacking of 5 sets as a single hub count by SCSI Cables
SCSI-II 25-pin connection cable of 100 mm long

External Switching Power Adapter

Operating AC power voltage 100~240V AC Auto-switching
Output DC power voltage 5V, 3A maximum

EMI Certifications

FCC	Part 15, Class A
CE	EN-55022, Class-A
VCCI	VCCI-V3, Class A
C-Tick	AS/NZS 3548/CISPR 22, Class A

Product Limited Warranty

Acer Netxus Incorporated (ANI) warrants its product to be free from defects in materials and workmanship, under normal use and service, for the following lengths of time from the date of purchase from ANI or its Authorized Resellers.

Network adapter card	Limited Lifetime
Unmanaged hub	*Limited Lifetime
Dual-speed hub	*3 year
Switch and managed hub	*3 year

** Power supply/adapter and fans in these devices provide ONE YEAR warranty*

All products with limited lifetime warranty have a standard five-year warranty. This warranty does not cover the product if it is damaged by abuse, accident, misuse, improper installation, or improper testing. If a product does not operate as warranted during the applicable warranty period, ANI shall, at its option and expense, either repair the defective product or part returned to ANI, or deliver to customer an equivalent product or part to replace the defective item. Definitely, all products that are replaced will become the property of ANI. Replacement products may be new or reconditioned. Any replacement or repaired product or part has a ninety days warranty or the remainder of the initial warranty period, whichever is longer. ANI shall not be responsible for any software, firmware, information, or memory data of customer contained in, stored on, or integrated with any products returned to ANI pursuant to any warranty. Before you obtain warranty service, you must request an RMA (Return Materials Authorization) number by calling, faxing or writing ANI's Customer Service Department at the numbers listed below. You must use the original container (or the equivalent) and pay the shipping charge.

ANI SHALL NOT BE HELD LIABLE FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL OR RUNTIME DAMAGES OF ANY KIND; OR FOR LOSS OF REVENUE, LOSS OF BUSINESS, OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE, OR INTERRUPTION OF ITS PRODUCTS, EVEN IF ANI OR ITS AUTHORIZED DEALER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

It you purchased this product in the UNITEDSTATES, some states do not allow the limitation or exclusion of liability for incidental consequential damages, so the above limitation may not apply to you.

	Model Name _____
	Series No. (S/N) _____
(Authorized distributors' or Resellers' Stamp)	Purchase Date / / _____

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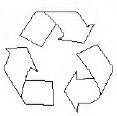

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